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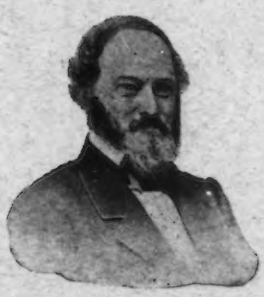

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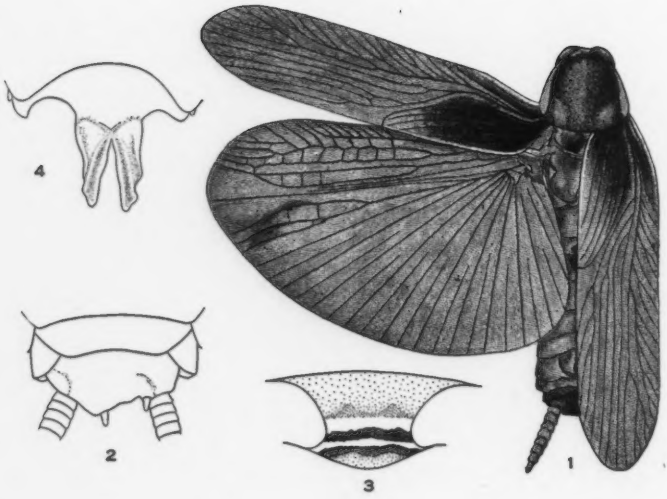

1, 2.—EUPHYPNORNA GRATA.
2, 3.—CHORISONEURA GATUNAE.

—HEBARD.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

THE ACADEMY OF NATURAL SCIENCES, PHILADELPHIA

VOL. XXXII JUNE, 1921 No. 6

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A Note on Panamanian Blattidae, with the Description of a new Genus and two new Species (Orth.).

By MORGAN HEBARD, Philadelphia, Pa.

(Plate III)

During the summer of 1920, while going to and returning from Colombia, our ship remained at Cristobal, Canal Zone, Panama, July seventh and eighth and August eighteenth, long enough for us to make five short excursions into the adjacent country. In spite of frequent heavy showers we were able to secure a number of species of Orthoptera, and, as the Blattidae in the Philadelphia collections from this region have been studied,[1] the material representing that family is here recorded.

We were able to note several features of interest for this region. Both visits showed that the season was not sufficiently advanced for the best results in collecting Orthoptera. On the first visit a high percentage of many species seen were immature, on the second this percentage was lower, but it was evident that, as in Colombia, September would probably reveal the largest number of species present in the adult condition.

[1]Mem. Am. Ent. Soc., No. 4, pp. 1 to 148, (1920).

The rain hampered collecting mainly by making it almost impossible to beat the vegetation. A water-soaked net cannot be properly handled, and the drenched foliage prevents many specimens from falling into the net. On the other hand many individuals could be located even during showers and, as soon as the rain stopped, insect life appeared on all sides in favorable situations.

Night work proved on the whole disappointing, due apparently in large part to the fact that few species could be heard stridulating. Such work would probably have proven more profitable later, when adults, particularly of the species of Tettigoniidae, would be present in much larger numbers. The Blattidae are nocturnal and many species missed in searching their retreats during the day may be secured at night. Such was true in the case of *Euhypnorna grata* here described, the only specimen of which was easily secured at night, being found resting on the upper surface of a green leaf on the edge of a heavy tangle of vegetation.

Only in areas of heavy tangled vegetation, growing on low wet ground, was material found abundantly. Collecting on higher ground proved very unproductive, both in brushy and forested areas, while over extensive pasture lands the only material of interest was taken from under the dead bark of decaying logs.

The localities visited were Paris Field on July 7 and August 18 (referred to below as P7 and P18 respectively), and Gatun on July 8 (referred to below as G).

Adding the additional genus and three species here recorded, which were hitherto unknown from Panama, the total number of Blattidae recorded from this region is now fifty-four genera and one hundred and six species. The rich character of the region is better understood when we realize that but forty-nine species and races of the Blattidae are known from all of North America north of the Mexican boundary.

Lissoblatta fulgida (Saussure). P7, 2 ♂. Both of these males are very dark and immaculate in coloration. Very few specimens were found.

Anaplecta cabimae Hebard. P7, 2♀; G, 1 ♀. A very few specimens were seen at Paris Field; these were found at night on the leaves of a twenty-foot high reed or grass.

Ceratinoptera picta Brunner. G, 2 ♂, 8 ♀, 4 juv. These specimens were found in moderate numbers under the bark of decaying logs and were more active than individuals of the other species found there, running about hurriedly when disturbed. Two females have the ootheca extruded, with suture dorsad. The usual decided size variation in the organs of flight is shown by this series. The males and to a less degree two females, have on the pronotum a pale meso-caudal marking. The other females and all of the juveniles have the pronotum very dark, paling only in a very small area toward the latero-caudal angles. The juveniles are very dark except in that area and on the metanotum, the proximal portion of which is transparent whitish. This gives them a peculiar once-banded facies, particularly noticeable in life.

Eudromiella bicolorata Hebard. P7, 1 ♂.

Latiblattella inornata Hebard. P7, 1 ♀; P18, 1 juv. These specimens were found under the palm trees in decaying leaf mould and litter.

Rhytidometopum megalopterum Hebard. P7, 1 juv.

Cariblatta imitans Hebard. P7, 1 ♂; P18, 1 ♂, 2 ♀.

Neoblattella fratercula Hebard. P18, 1 juv. in instar preceding maturity.

Neoblattella impar Hebard. P18, 1 ♂.

Neoblattella nahua (Saussure and Zehntner). P7, 2 ♀.

Neoblattella fraterna (Saussure and Zehntner). P7, 4 ♂, 5 ♀; P18, 5 ♂, 4 ♀; G, 1 ♂. At Paris Field this species was common in decaying leaf mould and litter on bare moist ground under palms, while individuals were occasionally found at night, climbing about in the luxuriant vegetation. Specimens were also taken from the dead leaves of *Cecropia* sp

Ischnoptera rufa rufa (De Geer). P7, 4 ♂, 1 ♀, 2 juv. The few adults in this small series show the interocular width to vary from four-fifths that between the ocelli to slightly greater than that dimension. The immatures have the dorsal surface blackish, showing scarcely any trace of a brown tinge, the latter being the usual coloration of immatures of the species. The species was not scarce in decaying leaf mould and litter on bare moist ground under palms.

Xestoblatta festae (Griffini). P7, 1 ♂; G, 1 ♀.

EUHYPNORNA new genus.

This new genus belongs to the same category as *Hypnorna*, *Hypnornoides* and *Calhypnorna*. The small species included resemble certain forms of Coleoptera and, though delicate in structure, have a more coriaceous pronotum and tegmina than the genera to which apparently nearest relationship is shown.

These genera we place at the end of the Corydiinae and, though very distinct, are in our opinion clearly of closer affinity to the other genera included in that subfamily than to *Oxyhaloa*. *Chorisoneura* and the remaining genera we have recognized, at least tentatively, as members of the subfamily Oxyhaloinae. Material representing a sufficient number of the genera and species of these subfamilies is at present not available for the thorough rearrangement evidently needed.

To the genus *Hypnorna* nearest affinity is indicated, *Euhypnorna* differing in the male sex in the narrower interocular width, pronotum with caudal margin very broadly convex instead of truncate, tegmina which do not taper distad and consequently are more broadly rounded at the apices and tegminal discoidal sectors which are longitudinal instead of oblique.[2] Numerous other distinctive generic differences will probably be found when *Hypnorna* can be more fully characterized.

Genotype.—Euhypnorna grata new species.

Generic Description (based on male sex).—Size small, form slender. Surface of head, pronotum and tegmina well supplied with erect, elongate, scattered hairs. Head with eyes very large and interocular space comparatively narrow, ocelli absent. Antennae supplied with a not unusual number of short hairs. Pronotum symmetrically trapezoidal with margins weakly convex and angles broadly rounded, lateral margins weakly divergent caudad, latero-caudal sulci weakly indicated and very broad. Tegmina elongate and narrow, with margins parallel to near the distal portion, discoidal sectors longitudinal except at sutural margin. Wings with costal veins not clubbed, mediastine vein extending over two-thirds distance to apex of wing, discoidal vein with one branch, ulnar vein with one branch, intercalated triangle large and distinct. Dorsal surface of abdomen with sixth tergite specialized. Subgenital plate

[2]Compared with Saussure and Zehntner's more detailed description of *Hypnorna*, the present genus is seen to differ further in having the head without a carina and sulcus between face and vertex, the wings with costal veins not clubbed distad and the ulnar vein with a single complete branch. These features may be found in *blanda* Saussure and Zehntner, but we cannot determine whether they are true for the genotype, *hummeli* Stål.

asymmetrical, with two simple styles. Ventro-cephalic margin of cephalic femora supplied distad with well-spaced, minutely microscopic, short but heavy spinulae, terminated by two elongate spines. Caudal margins of femora unarmed, except for a distal spine on one of the median femora, cephalic margins of median femora armed with two and one distal elongate spines and with a similar genicular spine.[3] Minute pulvilli present on four proximal tarsal joints. Arolia present between the simple, symmetrical tarsal claws.

In the type of *Hypnornoides burri* Rehn, the small spines of the ventro-cephalic margins of the cephalic femora are piliform and much more numerous, large pulvilli are present on the four proximal tarsal joints and large arolia are present between the simple, strongly asymmetrical tarsal claws. That genus, known only from the female sex, appears to be extremely close to *Hypnorna* and may indeed represent the female sex of the genotype, *hummeli* Stål.

Euhypnorna grata new species (Plate III, figures 1, 2).

Late at night, while shining the foliage on the swampy jungle border with a hand electric flash lamp, what appeared to be a small beetle was noticed, resting longitudinally on the surface of a leaf. That specimen was seized and placed in the cyanide bottle. It was not until we had returned to the ship and were packing the material taken that we found that insect to be a remarkable cockroach upon which specimen the present new genus and species is based.

The blackish-brown pronotum with narrow hyaline lateral margins, and tegmina, which are blackish mummy brown proximad, weak ochraceous-tawny in all other portions, give this species a strikingly bicolored appearance, not shared by any of the species of the related genera.

Type.— ♂ ; Paris Field, Cristobal, Canal Zone, Panama. July 7, 1920. (M. Hebard.) [Hebard Collection, Type No. 762.]

We add the following characters of specific value to those given in the generic description:

Eyes very large, occipital ocular depth equal to width between antennal sockets, interocular space two-fifths that width; that area and the

[3]The caudal femora are missing in the single specimen before us.

surface ventrad with minute irregular impressed lines and dots, but with no transverse ridge or sulcus. Maxillary palpi short, third joint two-thirds as long as the large fifth joint, fourth joint three-quarters as long as third, widening evenly distad.

Lateral marginal portions of pronotum very narrow, deplanate. Tegmina with marginal field very narrow and curled dorsad at costal margin; discoidal sectors (five) longitudinal, the last sending (one and three) branches to the sutural margin. Wings very delicate, with conspicuous cross-veins between mediastine and discoidal veins, between discoidal vein and its branch and less decided between ulnar vein and its branch.

Dorsal surface of abdomen with latero-caudal angles of seven tergites bluntly rounded, of eighth very broadly rounded. Sixth tergite with a large, deeply concave, transverse oval depression mesad, containing a prominence meso-caudad which bears a heavy tuft of agglutinated hairs directed cephalad. Eighth tergite with caudal margin above supra-anal plate broadly and roundly obtuse-angulate emarginate. Supra-anal plate with length two-fifths basal width, very slightly produced at bases of cerci, the caudal margin between these nearly transverse, very weakly convex. Sinistral plate of concealed genitalia produced meso-dorsad in a fang-like tooth. Subgenital plate slightly more produced dextrad than sinistrad, the similar styles small, simple, cylindrical, about twice as long as greatest width with apices bluntly rounded, sinistral style at internal margin of cercus, dextral style decidedly mesad of the homologous point dextrad, free margin laterad to these styles irregularly convex, between them irregularly concave.

Head, palpi and ventral surfaces of thoracic segments blackish mummy brown. Mouthparts and proximal joints of antennae dresden brown, remaining portions of antennae blackish mummy brown, except for a meso-distal annulus of light buff, occupying seven joints.

Pronotum blackish mummy brown, except the narrow lateral portions which are hyaline, very faintly tinged with ochraceous-tawny. Tegmina proximad, in area as long as head and pronotum, translucent mummy brown, as dark as pronotum when closed; remaining portions transparent, tinged with ochraceous-tawny, this very weak in area of dextral tegmen, concealed when at rest, the veins of which area are weakly stained with mummy brown in the distal portion.

Dorsal and ventral surfaces of abdomen buffy tinged with tawny, becoming blackish mummy brown distad, sixth tergite with tuft of agglutinated hairs tawny. Cerci light ochraceous-tawny.

Cephalic coxae and all but distal portions of median and caudal coxae blackish mummy brown, the distal portions of the latter ochraceous-buff with a tawny tinge. Cephalic femora blackish mummy brown, becoming ochraceous-buff with a tawny tinge dorsad, median femora ochraceous-buff with a tawny tinge, becoming blackish mummy brown

ventrad. Tibiae blackish mummy brown, tarsi ochraceous-buff tinged with tawny.

Length of body 8.2, length of pronotum 1.9, width of pronotum 2.1, length of tegmen 8.3, width of tegmen 2, length of wing 8.2, width of wing 5.6 mm.

Euphyllodromia angustata (Latreille). P7, 3 ♂, 5 ♀. These specimens were beaten from tall herbage growing under tall scattered trees on a low hill.

Epilampra azteca Saussure. P 7, 1 ♂, 1 juv.; G, 1 ♀. This species was very scarce at Paris Field under the palm trees in decaying leaf mould and litter. The immature specimen jumped actively about like a cricket. Though we have noted that many cockroaches will spring from one projection to another when running about and will also often leap into the air when taking flight, this is the first time we have observed an individual leaping constantly about in its efforts to escape capture. At Gatun a single specimen was found under the decaying bark of a log.

Epilampra maya Rehn. P7, 3 ♂, 2 juv.

Panchlora cubensis Saussure. P18, 1 ♀; G, 1 ♀, 2 juv. At Paris Field an individual was beaten from low foliage. At Gatun, under the bark of decaying logs, juveniles were occasionally met with and a single adult was found.

Phortioeca phoraspoides (Walker). G, 1 ♀, 2 juv. These three specimens were found under a single piece of decaying bark on a log at Gatun.

Compsodes delicatulus (Saussure and Zehntner). G, 1 ♀. This specimen was taken at Gatun, from under the decaying bark of a log, in company with numerous examples of *Ceratinoptera picta* Brunner.

Compared with a Guatemalan female before us, the present specimen is seen to have the pronotum proportionately slightly broader, marginal areas of the dorsal surface slightly paler and extending to apex of abdomen, not confined to the four proximal segments as in that specimen, but lateral areas of mesonotum and metanotum less contrastingly pale. These features may indicate individual variation, or constitute valid specific diagnostic criteria, showing the presence of two distinct species. Additional material will be needed before this problem can be solved. This genus was previously known from Panama only from males of *C. cucullatus* (Saussure and Zehntner).

Chorisoneura parishi Rehn. P7, 1 ♂, 1 ♀; P18, 1 ♀, 2 juv. G, 2 ♂, 3 juv.

Chorisoneura gatunae new species. (Plate III, figures 3, 4).

This species agrees closely with *C. translucida* (Saussure), the male before us differing in the head with two transverse

whitish interocular bands, of which the dorsal is the wider, separated by a dark brown band of intermediate width and with the whitish bands margined with a broad suffusion of brown dorsad and a darker narrow margin of brown ventrad. The styles are also much more elongate, with internal portions decidedly more produced than external portions and narrow interval between the bases of the styles apparently unspecialized.

Type.— ♂ ; Gatun, Canal Zone, Panama. July 8, 1920. (M. Hebard.) [Hebard Collection, Type No. 763.]

Size medium for the small species of the genus, form depressed, surface glabrous. Head with occiput largely exposed. Interocular space about one and one-third times the occipital ocular width, slightly over three-quarters the width between the antennal sockets. Maxillary palpi with fifth joint enlarged and elongate, slightly shorter than third joint, fourth joint three-fifths as long as third.

Pronotum transverse, subelliptical, greatest width slightly cauded of median point; cephalic margin distinctly though broadly convex, caudal margin transverse, feebly convex; latero-cephalic angles distinctly more broadly rounded than latero-caudal angles. Tegmina reaching nearly as far caudad as cerci, strongly elongate lanceolate, much as in *translucida;* costal and sutural margins evenly and feebly convergent, straight from proximal third to the sharply rounded apex; discoidal vein with (ten to eleven appreciable) costal veins, which are almost straight, discoidal sectors (eight) oblique.[4]

Subgenital plate small, brief lateral margins concave and nearly transverse each side of the large styles, this emargination deeper and broader dextrad than sinistrad; interval between styles very small, triangular and apparently unspecialized. Styles similar, elongate compressed structures, much longer than in *translucida,* each with external section heavy, vertical in transverse section, tapering to its apex which rounds into the external margin of the internal section; that section longer, delicate, horizontal in transverse section, with ventral surface concave longitudinally, of equal width to near apex, there a narrowing is caused by a convexity of the external margin, which results in the immediate apex being narrowly though not sharply rounded. Armament of limbs, tarsi, pulvilli, arolia and tarsal claws as in the related species.[5]

[4]We have not examined the wings or dorsal surface of the abdomen in this delicate unique. To do so might have caused serious damage and we feel that the species is readily recognizable without these parts being described.

[5]Described Mem. Am. Ent. Soc., No. 4, p. 132, (1920).

Head with vertex weak ochraceous-tawny, a moderately broad transverse band of light buff between the eyes, margined dorsad with a broad but weak suffusion of cinnamon brown, below the light band a slightly narrower band of blackish mummy brown, below this a narrow band of light buff, which margins the eyes laterad to the ocellar spots, this bordered ventrad in all but brief lateral portions by a scarcely wider but heavy suffusion of mummy brown; remaining portions of head, antennae and palpi light ochraceous-buff.

Pronotum with disk weak ochraceous-tawny, remaining portions hyaline, faintly tinged with the same color, this more apparent along the caudal margin. Tegmina hyaline tinged with light ochraceous-tawny, this faint along the costal margin, veins and interspaces between them not contrastingly colored. Wings transparent, tinged with ochraceous-tawny, heavily clubbed apices of costal veins opaque, light buff.

Ventral surface of abdomen light ochraceous-tawny, becoming slightly darker distad, the free margins of the sternites tinged with light buff, narrowly caudad and more broadly laterad and appearing more opaque, subgenital plate wholly light ochraceous-tawny.

Length of body 7.6, length of pronotum 1.8, width of pronotum 2.7, length of tegmen 6.9, width of tegmen 2.1 mm.

This specimen was beaten from the large, leathery leaves of a small tree, growing in the open on a grassy hillock. This tree was infested with a long, slender, pale yellowish ant, which bit painfully.

Chorisoneura cabimae Hebard. G, 1 ♀.

Chorisoneura specilliger Hebard. P7, 1 juv.; G, 3 ♂. At Gatun three males were beaten from the foliage of large leaved trees of the same species, on the bank of the French Canal.

EXPLANATION OF PLATE III.

Fig. 1. *Euhypnorna grata* new species. Dorsal view of male type. (X 7).

Fig. 2. *Euhypnorna grata* new species. Ventral outline of subgenital plate of male type. (Greatly enlarged.)

Fig. 3. *Chorisoneura gatunae* new species. Cephalic view of occiput of male type. (Greatly enlarged.)

Fig. 4. *Chorisoneura gatunae* new species. Ventral view of subgenital plate of male type. (Greatly enlarged.)

All of One Species!

At the Annual Exhibition of the South London Entomological and Natural History Society on November 25, 1920, Lord Rothschild exhibited the series of 1277 specimens of *Abraxas grossulariata* L. from the British collection of the Tring Museum; they consisted of the series from the Bright and Gibb collection, and those collected by himself; the larger number of the more extreme varieties have been bred by the Rev. Gilbert Raynor. (*Ent. Mo. Mag.*, March, 1921, p. 68.)

The Bee Flies of North Carolina (Bombyliidae, Dip.).

By C. S. Brimley, N. C. Dept. of Agriculture, Div. of Entomology, Raleigh, N. C.

The following is a summary of our Bombyliid records to date, the initials following the records being those of the following persons who have collected specimens of this group: F. Sherman, Chief of the Division; R. S. Woglum, G. M. Bentley, R. W. Leiby, T. B. Mitchell, C. L. Metcalf, S. W. Foster and C. S. Brimley, his assistants at various times.

Anastoechus nitidulus Fab. Southern Pines, Sept., 1906, RSW: Wilmington, Sept. 19, Oct. 4, 1919, M. Kisliuk, Jr.

Anthrax alternata Say. Blowing Rock, July 24, 1904, FS.

Anthrax celer Wiedemann. Raleigh, common mid-July to mid-September on flowers of water parsnip and wild carrot. Beaufort, Aug. 11, 1902, FS.

Anthrax ceyx Loew. A very dark specimen of this group taken at Highlands, Sept., 1906, by R. S. Woglum, doubtfully referred here; the third posterior cell is undivided.

Anthrax fulvohirta Wied. Raleigh, common early June to early September. Beaufort, late June and early August, FS. Southern Pines, mid-August, FS.

Anthrax gracilis Macq. Cranberry, June 10, H. W. Wenzel, received from C. W. Johnson.

Anthrax halcyon Say. Raleigh, mid and late June, four, CSB and CLM; Southern Pines, one without date from A. H. Manee, one collected Sept., 1906, RSW; Lumberton, Oct. 8, 1920, three, TBM. All these are much paler than the Highlands "ceyx," and have the third posterior cell transversely divided by a cross vein.

Anthrax hypomelas Macq. Burnsville, Oct. 3, 1902, Blowing Rock, July 24, 1904, Watauga County, July 22, 1904. All mountain localities and all FS records.

Anthrax lucifer Fab. Previous to last year we had only taken three specimens at Lumberton, Sept. 6, 1902, FS; Fayetteville, July 10, 1903, SWF, and Raleigh, Oct. 20, 1916, CSB; but in 1920 the species was common at Raleigh, from early September to early November, and was also taken at Laurinburg, Gibson, Wadesboro and Maxton, all near the South Carolina line, by T. B. Mitchell in early and mid-October.

Anthrax lateralis Say. Common, May to early November. Localities: Raleigh, Beaufort, Terra Ceia, Whiteville, White Lake, Southern Pines, Gibson, Elizabethtown, Highlands and Blowing Rock. Bred from pupae of Plathypena scabra by R. W. Leiby at Terra Ceia in August and September, 1919.

Anthrax sinuosa Wied. Raleigh, late May to mid-September, not common, CSB & FS.

Anthrax tegminipennis Say. Oct. 4, 1919, M. Kisliuk, Jr.

Bombylius azaleae Shannon. Raleigh, not uncommon in late April, CSB, Norlina, April 21, 1905, FS; Spruce (Sunburst), late May, common, FS and CSB; Black Mountain, May 21, 1904, CSB; White Lake, mid-April, 1910, FS; Lake Waccamaw, April 23, 1920, RWL.

Bombylius incanus Johnson. Havelock (Lake Ellis), late May, 1907, common, FS.

Bombylius major Linn. Common in late March and in April. Raleigh, Southern Pines (earliest date March 12, 1913, common, CLM.), Lake Waccamaw, Burgaw.

Bombylius pulchellus Loew. Spruce (Sunburst), late May, 1912, two, CSB.

Bombylius pygmaeus Fab. Raleigh, not common, in April and early May, CSB; Spruce (Sunburst), common in late May, 1912-13, CSB; Asheville, April 20, 1905, FS.

Bombylius subvarius Johnson. White Lake, late May, 1909, one, FS.

Bombylius varius Fab. Late April and May, rather common. Raleigh, Charlotte, Blowing Rock, Southern Pines, Hendersonville.

Exoprosopa decora Loew. Old Fort, Aug. 11, 1903, SWF, late Oct., 1920, FS.

Exoprosopa eremita O. S. Southern Pines, Aug. 15, 1902, FS, Lakeview, June 12, 1912, CSB.

Exoprosopa emarginata Macq. Raleigh, June 21, 24, 1904, CSB; Southern Pines, June 6, 1906, RSW; Elkin, June 18, 1901, FS.

Exoprosopa fasciata Macq. Late July to mid-September common, Raleigh, Oakdale, Southern Pines, Beaufort, Newton.

Exoprosopa fascipennis Say. June to September, common, Raleigh, Southern Pines, Brinkleyville, Beaufort, Blowing Rock, Lakeview, Statesville.

Exoprosopa titubans O. S. Raleigh, July 15, 1902, FS.

Geron senilis Fabr. Rather common at Raleigh, from mid-June to late September on flowers of Helenium tenuifolium.

Pseudogeron sigma Coq. "North Carolina, H. K. Morrison," Coquillett Proc. U. S. N. M., XXV, 101.

Sparnopolius fulvus Wied. Abundant in fall, at Raleigh from mid-September to early November. Throughout the state.

Spogostylum analis Wied. Raleigh, early July, 1903, FS, Sept. 5, 1919, CSB; Beaufort, mid-Aug., 1902, FS; Elkin, mid-June, 1901, FS; Pendleton, June 7, C. W. Johnson; Andrews, Aug. 19, 1904, FS; Lexington, early August, 1910, G. B. Lay.

Spogostylum argyropyga Wied. Raleigh, June, not common, CSB.

Spogostylum cephus Fab. Raleigh, June 23, 1920, CSB.

Spogostylum limatulus Say. Raleigh, June 19, 1919, CSB; White Lake, early June, 1915, FS.

Spogostylum oedipus Fabr. Raleigh, mid-August to mid-September, CSB; Spruce (Sunburst), late May, 1912, CSB; Andrews, mid-August, 1904, FS.

Spogostylum simson Fabr. Has been received from Raleigh, Southern Pines, Andrews, Bushnell, Stecoah, Lexington and Asheville, at dates varying from July 16 to September 1. Never common. Has been known to be attracted by the smell of fresh paint, and also, like others of the genus, seems to have tendency to alight on human beings, possibly attracted by the smell of perspiration. Not recorded so far east of Raleigh.

Systoechus vulgaris Loew. Raleigh, August 30, 1904, CSB; Southern Pines, August 15, 1902, FS; Bushnell, September, 1904, GMB.

Systropus imbecillus Karsch. Early and mid-September, not uncommon in open woods, CSB; Wadesboro, Oct. 23, 1920, TBM; Lucama, Sept. 27, 1920, TBM.

Systropus macer Loew. Raleigh, July 21, 1912, one bred from pupa of Euclea delphinii, CSB, early September, one, FS. Lucama, Sept. 27, 1920, two, TBM.

Toxophora amphitea Walker. Raleigh, late July, 1912, early August, 1914, mid-July, 1916, CSB.

Toxophora leucopyga Wied. Early July, 1910, CSB, late July, 1912, CLM, three specimens taken at Raleigh. Of these one has three submarginal cells in each wing, a second has two in each wing, while the third has two in one wing and three in the other.

A New Pristomerine from California (Hym., Ichneumonidae).

By Henry L. Viereck, U. S. Bureau of Biological Survey, Washington, D. C.

The Pristomerinae are a subfamily of Ichneumon-flies, the species of which are so far known to be parasitic on moths of the families Tortricidae and Gelechiidae. The host relationship of the present species is as yet unknown.

Neopristomerus woodworthi n. sp.

Type and *allotype*.—No. 33, on deposit at the California Academy of Sciences from the University of California. Type locality.—Berkeley, California, May 20, '07. Collector.—Prof. C. W. Woodworth.

♀ *Type*.—Length 7.5 mm.; sheaths of ovipositor almost as long as the abdomen; of the North American species of the tribe Pristomerini this agrees best with *Neopristomerus ? coloradensis* Brues, as originally described; black; head, legs and abdomen partly reddish; front excavated above the antennae, shagreened and dullish; clypeus convex, shining, the anterior two-thirds mostly reddish, its anterior edge rounded;

mandibles bidentate, yellowish with black tips; face below antennae punctured, dullish and distinctly clothed with silvery pubescence, temples finely reticulated, a reddish brown orbital line extending along the eye-margin from over half-way down on the inner margin to nearly all the way down along the outer margin of the eyes; antennae blackish throughout, first joint of flagel four times as long as thick, second and third joints each shorter than the first, subequal and at least three times as long as thick, the succeeding joints also subequal in length, becoming quadrate at the 28th joint, then thicker than long with the exception of the terminal joint, which is a little more than twice as long as thick; palpi blackish at base, then fuscous, lateral ocelli nearer to the eye-margin than to each other.

Thorax black and punctured, its pleurae especially pubescent like the face, notauli distinct anteriorly, tegulae and wing bases yellowish; wings transparent with a brownish tinge, stigma and veins dark brownish except toward the wing-base, where the veins become yellowish, transverse cubitus a little longer than the cubital abscissa between the transverse cubitus and the recurrent vein, the latter a little longer than the brownish portion of the cubitus beyond the recurrent vein, second abscissa of the discoidal vein a little longer than the third abscissa of the discoidal vein, nervellus slightly angulated at the middle, from which point there extends toward the anterior edge of the hind wing a bulla, representing the subdiscoidal vein; legs mostly reddish stramineous, fore and mid coxae brownish stramineous beneath, blackish above, hind coxae and proximal trochanters mostly blackish, fore and mid tarsi stramineous to brownish stramineous except their onychii and their appendages, which are fuscous, distal trochanters of hind legs blackish in part, hind tibiae at base and apex and hind tarsi throughout fuscous; propodeum pubescent like the face, its carinae well developed, except the longitudinal carinae, which are poorly developed between the basal and apical transverse carinae, basal area narrowly truncate posteriorly, the areola with a central impunctate area, the petiole area apparently as long as the areola, but wider, both the areola and the petiole area not much longer than wide, the latter transversely striate.

Abdomen mostly reddish and polished, petiole black except at base and beneath where it is translucent brownish, post petiole black except at apex, where it is translucent brownish, and beneath, where it is yellowish, second dorsal segment mostly black, finely striate laterally, the apical half mostly reddish, second ventral segment yellowish, third to fifth dorsal segments inclusive reddish with a blackish border along the lateral margin and with a blackish streak down the back that is interrupted on the apical half of the third segment, seventh and eighth dorsal segments mostly blackish.

Allotype-locality—San Diego, California, April 29, 1913, collector E. P. Van Duzee.

♂. Agrees with the description of the type except as follows:—Length 6 mm.; reddish brown orbital line not extending as far as halfway down along the inner eye-margin, twenty-eighth and following joints of the flagel apparently a little longer than thick, penultimate joint apparently as long as thick, last joint apparently twice as long as thick; second abscissa of the discoidal vein distinctly shorter than the third abscissa of the discoidal vein, nervellus angulated a little above the middle; hind femora blackish along the edge between the great tooth and the apex of the femur; areola nearly twice as long as broad, the dorsal, abdominal blackish streak represented by a basal, median, blackish mark on the third to fifth segments.

A New Species of Habrobracon (Hym., Braconidae).

By Henry L. Viereck.

The species of this genus are on record as parasites of many species of moths, the most notable of which is the Mediterranean Flour Moth. The host relationship of the present species is unknown.

Habrobracon diversicolor n. sp.

Type.—No. 124, on deposit at the California Academy of Sciences from the University of California. Type-locality—Berkeley, California.

♀ Type.—Length 2.5 mm.; related to *H. variabilis* Cushman; black and finely sculptured, a yellowish, interrupted orbital mark along the inner and upper eye-margin, lowest part of the outer eye-margin with a brownish mark, a brownish mark on each side of the face adjoining the antennal scrobes, clypeus and lower edge of malar space brownish, mandibles yellowish with dark tips, scape blackish, pedicel and lower half of flagel dark brownish, apical half of flagel blackish, flagellar joints subequal, the first joint the longest and the last joint the shortest, all the joints longer than thick, the first joint at least twice as long as thick.

Tegulae blackish brown; wings with a brownish tinge, stigma and veins brownish stramineous, costa brownish; coxae blackish, rest of legs mostly reddish brown, tarsi, forelegs and mid femora more or less infuscated.

Abdomen, finely, reticulately sculptured above, smooth, blackish, except for the apical margin of the first segment, the lateral margin of second to fifth segments inclusive and most of the rest of the third and basal half of the fourth segments, which are reddish brown, seventh segment, ventral segments, yellowish and brownish; abdomen nearly twice as long as wide and apparently a little wider than the thorax, sheaths of the ovipositor apparently two-thirds as long as the abdomen.

Undescribed Crane-Flies from Argentina (Tipulidae, Dipt.)—Part III.

By CHARLES P. ALEXANDER, Urbana, Illinois.

The types of the novelties described in this paper are preserved in the collection of the writer, except where indicated as occurring in the Museum of La Plata. The writer is greatly indebted to Dr. Bruch and Engineer Weiser for their kind co-operation in making known the interesting crane-fly fauna of Argentina.

Rhipidia subterminalis new species.

Antennae dark brown; mesonotum yellowish fawn color, the praescutum with a broad dark brown median stripe; pleura brownish yellow with two narrow dark brown longitudinal stripes; femora obscure yellow with a narrow dark brown subterminal ring; wings brown, the costal region variegated with dark brown and subhyaline; basal deflection of *Cu*1 at the fork of *M*; abdomen reddish orange, segments six and seven black.

♀. Length 7.8 mm.; wing 8.7 mm. Rostrum chestnut brown; palpi dark brown. Antennae dark brown, the first segment pruinose; flagellar segments unipectinate. Head dark with a sparse yellow pollen.

Mesonotal praescutum fawn-colored, yellowish pollinose, with a broad, median, dark brown stripe, broadest and most distinct on the posterior half; lateral stripes barely indicated; scutal lobes dark brown; scutellum and anterior part of postnotum brown, the posterior half of the latter more fulvous. Pleura light brownish yellow, pollinose, with two narrow and indistinct dark brown longitudinal stripes, the more ventral traversing the bases of the coxae and the dorsal portions of the mesosternum. Halteres dark brown, bases of stem yellow. Legs with the coxae yellow, dark brown basally; femora obscure yellow with a narrow dark brown subterminal ring; tibiae and tarsi brownish black. Wings with a strong brownish tinge, with large, dark brown and subhyaline blotches, more evident along the costal region; the dark brown areas include cell *C*; *Sc* except three narrow yellowish areas; conspicuous brown clouds at stigma, origin and fork of *Rs*; tip of *Sc*; along the cord and outer end of cell 1*st M2* and the dark centers of cells *2nd R*1, *R3* and less distinctly, *R5* and *2nd M2*; the subhyaline areas appear in cell *R* before the origin of *Rs*; beneath *Rs*; in cells 1*st R*1, *2nd R*1 and *R3*; a rounded subhyaline area in cell 1*st A* at the end of vein *2nd A*; veins dark brown. Venation: *Sc* long, *Sc*1 ending about opposite two-fifths *Rs*, *Sc2* at the extreme tip of *Sc*1 and much longer than *Sc*1 alone; no supernumerary cross-vein in cell *Sc*; inner end of cell 1*st M2* arcuated; basal deflection of *Cu*1 at the fork of *M*.

Abdomen reddish orange; segments six and seven black; lateral margins of the tergites narrowly darkened.

Habitat: Argentina. *Holotype*, ♀, La Plata, Bosque, May 23, 1920 (C. Bruch), in the collection of the Museum of La Plata.

Rhipidia microsticta new species.

General coloration brownish buff; antennae brown, only the pedicels of the flagellar segments paler; mesonotal praescutum with an interrupted median stripe and short lateral stripes; pleura buffy with two

narrow and indistinct longitudinal brown stripes; femora brownish yellow with a narrow brown subterminal ring; wings subhyaline with an abundant pale gray dotting in all the cells.

♂. Length 5.5 mm.; wing 6.3 mm. ♀. Length 6.5-7 mm.; wing 7.8-8 mm.

Rostrum and palpi dark brown. Antennae dark brown; in the male specimens available the flagella are broken and the nature of the pectinations cannot be described; in the female the flagellum is submoniliform to short unipectinate, each segment with a conspicuous pedicel, this latter paler than the remainder of the segment. Head dark gray, the vertex with an indistinct brown median line.

Mesonotal praescutum grayish brown, more buffy laterally, with dark brown stripes; a broad median stripe that is narrowly and rather indistinctly bisected, in many cases these stripes entirely interrupted near midlength; lateral stripes shorter and narrower; remainder of mesonotum more brownish plumbeous, the scutal lobes a little darker, the scutellum pruinose; postnotum not darkened as in the somewhat similar *R. shannoni*. Pleura buffy with two narrow and somewhat indistinct dark brown longitudinal stripes. Halteres pale, knobs dark brown. Legs with the coxae and trochanters pale yellow; femora brownish yellow with a narrow dark brown subterminal ring; tibiae brown, the tips very narrowly and indistinctly darkened; tarsi brown, the terminal segments black. Wings subhyaline with an abundant pale gray dotting in all the cells; slightly darker spots at the origin of *Rs*, tip of *Sc*1 and at stigma; the dots in the costal cell number only three or four; cell 1*st M*2 has but few dots; veins yellow, darker in the infuscated areas. Venation: *Sc* moderately long, *Sc*1 extending to about opposite one-fourth the length of *Rs*, *Sc*2 at the tip of *Sc*1; *Rs* long, strongly angulated at origin; cell 1*st M*2 rectangular; basal deflection of *Cu*1 close to or before the fork of *M*.

Abdomen dark brown, the genital segments paler.

Habitat: Argentina. *Holotype*, ♂, Ciudad, Jujuy, May 22, 1920 (V. Weiser). *Allotopotype*, ♀. *Paratopotypes*, 6 ♂♀.

Epiphragma annulicornis new species.

Related to *E. circinata* Osten Sacken; antennae annulate dark brown and yellow; head gray; mesonotal praescutum dark brown, the three discal stripes buffy, confluent; pleura gray, longitudinally striped with dark brown; femora with a narrow dark brown subterminal ring; wings pale yellowish with an abundant ocellate brown pattern.

♂. Length 11.4 mm.; wing 12 mm.; antenna about 4.8 mm. ♀. Length 10.5 mm.; wing 10.5-10.8 mm.

Rostrum and palpi dark brown. Antennae elongate in both sexes, but more so in the male; first flagellar segment dark brown, sparsely pruinose; second segment reddish brown; first flagellar segment yellow, cylindrical; remaining segments of flagellum dimidiate, the base of each dark brown, the apex yellow; only on the terminal segments are the segments more uniformly infuscated. Head gray; vertical tubercle slightly infuscated; frons in male very narrow.

Pronotum buffy yellow, dark brown medially. Mesonotal praescutum deep velvety brown, this color restricted to the margins of the sclerite, the disk almost entirely occupied by three broad confluent buffy stripes, the intermediate stripe split by a capillary pale brownish gray line; the usual praescutal inter-spaces are likewise narrowly pale brownish gray; scutum buffy, each lobe with a dark center; median line of scutum with a capillary brownish gray line; scutellum gray pruinose with a capillary median brownish gray line; a pit on either side of median line of

scutellum at base; postnotum silvery pruinose with a capillary brown line; a brown mark before midlength on either side of median line. Pleura gray, longitudinally striped with dark brown, the most conspicuous dorsal in position, extending from the cervical sclerites to the postnotum; dorso-pleural region variegated buffy and brown; mesosternum dark brown. Halteres rather elongate, yellow, the knobs dark brown. Legs with the coxae dark brown, the apices narrowly gray; trochanters obscure yellow, the inner face at apex dark brown; femora brownish yellow; a narrow dark brown subterminal ring, followed and preceded by a clearer yellow annulus; tibiae and tarsi yellow, the terminal tarsal segments brownish black. Wings pale yellowish, variegated with brown; darker brown areas along the costa at *h*, above the arculus; above origin of *Rs*; at the supernumerary cross-vein in cell *C*; tips of *Sc*1, *R*1 and *R*2; a very extensive paler brown ocelliform pattern covers the wing disk, circles having their centers at the origin of *Rs*; fork of *Rs*; fork of *R*2+3; *m;* fork of *M*1+2; at basal deflection of *Cu*1 and at the ends of the posterior cells; a series of ten to twelve more or less confluent spots in cell *Cu*; a series of brown dashes along the margin of the anal cells, the base of cell 1*st A* unicolorous. Venation: *Rs* angulated and spurred at origin; *R*2+3 a little less than one-half the basal section of *R*2; *r* about one and one-half times its length from the tip of *R*1; cell 1*st M*2 rectangular, widened distally; basal deflection of *Cu*1 at or before midlength of cell 1*st M*2; petiole of cell *M*1 shorter than cell.

Abdominal tergites dark brown; sternites obscure brownish yellow.

Habitat: Argentina. *Holotype*, ♂, Quebrada Famaillá, Tucumán, altitude 1600 meters, October 16, 1920 (V. Weiser). *Allotopotype*, ♀. *Paratopotypes*, 3 ♂♀; *paratype*, ♀, Sauce Gaucho, Tucumán, altitude 500 meters, October 12, 1920 (V. Weiser).

Limnophila subfuscata new species.

Antennae short; flagellum bicolorous; head light gray; mesonotum grayish buff, praescutum and scutum trilineate with dark brown; scutellum and postnotum dark brown medially; pleura with a dorsal longitudinal dark brown stripe that continues to the postnotum; legs yellow, the femoral tips broadly infuscated, bases and tips of tibiae narrowly infuscated; wings subhyaline, heavily spotted with brown, the radial cells almost uniformly washed with pale brown; first section of *R*2 short; abdomen obscure yellow, the caudal margins of the segments brown.

♂. Length 9.4 mm.; wing 8.5 mm. Rostrum brown, pruinose; palpi dark brown. Antennae with the first scapal segment brown, gray pruinose; second scapal segment brownish testaceous; flagellum bicolorous, the base of the segments brownish black, the apices obscure yellow, the terminal flagellar segments more uniformly darkened; antennae short, the flagellar segments oval. Head gray, bluish gray on the occiput; a short, linear, brown, median line between the eyes.

Pronotum buffy with a median brown line and small irrorations of the same color; prosternum separating the fore coxae. Mesonotal praescutum grayish buff with three brown stripes, the anterior end of the median stripe gray pruinose; thoracic inter-spaces with a few conspicuous brown spots; scutum grayish buff, trilineate with dark brown; scutellum and postnotum gray, the former with a median dark brown line, the latter with a median brown spot at the base; lateral and caudal margins of the median sclerite of the postnotum dark velvety brown.

Pleura buffy gray with a conspicuous, longitudinal dark brown line extending from the cervical sclerites to the postnotum, interrupted on the lateral sclerites of the latter; a small brown spot immediately before the root of the halteres; dorso-pleural membranes yellow; mesosternum blue-gray. Halteres yellow, the knobs and outer ends of the stems brown. Legs with the coxae grayish buff, sparsely dotted with pale brown; trochanters light brown; femora obscure yellow, the tips broadly dark brown; tibiae concolorous, the extreme bases and tips brown; tarsi yellow, the terminal segments dark brown. Wings subhyaline, the costal region more yellowish; entire surface of wing heavily suffused and spotted with brown; a series of dark brown areas in the costal and subcostal cells, these areas more extensive than the interspaces; cells *R*, *R*1 and the bases of cells *R2*, *R*3 and *R*5 are washed almost uniformly with pale brown, sparsely variegated with hyaline dots; remainder of the wing surface extensively covered with circular pale brown spots that are largely confluent and more extensive than the restricted pale interspaces. Venation: *Sc2* not indicated; *R*1 beyond *r* only about one-half longer than the latter; *R2*+3 short, about equal to *r*; *R2* before *r* about equal to the deflection of *R*4+5; cell 1*st M2* rectangular, about equal to the petiole of cell *M*1; basal deflection of *Cu*1 at about one-quarter the length of cell 1*st M2*.

Abdomen with the basal tergites light gray, dark brown medially; remaining tergites obscure yellow, the caudal margin broadly brown, the lateral margins less broadly so; sternites obscure yellow, the segments with a broad median caudal marking; both sternites and tergites with abundant brown setigerous punctures, more numerous and conspicuous laterally.

Habitat: Argentina. *Holotype*, ♂, Province of Buenos Aires, October 10, 1920 (C. Bruch), in the collection of the Museum of La Plata.

OROLIMNOPHILA new name

Orolimnophila, new name for *Oromyia* Alexander, Journ. N. Y. Ent. Soc., vol. 21, p. 203, 1913; preoccupied by *Oreomyza* Pokorny, 1887, *Oroşmya* Rondani, 1856.

Orolimnophila argentinicola new species.

General coloration brownish testaceous; antennae of male elongate, the flagellar segments densely covered with spinous setae; wings with no distinct stigma; *Sc*1 ending about opposite one-third the length of *Rs*; outer pleural appendage of male hypopygium elongate, chitinized, the outer margin with short, appressed spines, which continue to the apex.

♂. Length about 5.5 mm.; wing 6.7 mm. Rostrum and palpi testaceous. Antennae elongate in the male; scape obscure yellow; flagellum brown; flagellar segments elongate cylindrical, densely set with conspicuous spinous setae, none of which are developed into verticils. Head testaceous yellow.

Mesonotum brownish testaceous without distinct darker stripes; postnotum sparsely white pollinose. Pleura pale brown, sparsely pruinose. Halteres testaceous, knobs brownish. Legs dark brown; tibial spurs short. Wings with a pale gray tinge; stigma lacking; veins pale brown. Venation: *Sc* moderately long, *Sc*1 extending to about opposite one-third *Rs*; *Rs* arcuated at origin; *R2*+3 very long, exceeding *R*3; *R2* oblique; cell 1*st M2* small, subrectangular; outer deflection of *M*3 with-

out macrotrichiae; basal deflection of *Cu*1 at about one-fourth the length of cell 1*st M*2.

Abdomen brownish testaceous. Male hypopygium with the pleural appendages elongate; outer pleural appendage heavily chitinized, arcuated, the outer margin with microscopic appressed spines that continue to the apex; inner pleural appendage a little longer, tapering to the narrow obtuse apex, which is provided with a few microscopic setae. In the microscope mount of the hypopygium are two slender, chitinized horns that appear to be gonapophyses. What appears to be the homologue of the lyriform plate of the ninth sternite of *O. lloydi* is represented by a short, fleshy median plate, the lateral angles of which are produced into rather short, blunt lobes, the caudal margin of the plate thus appearing concave.

Habitat: Argentina. *Holotype*, ♂, Quebrada Famaillá, Tucumán, altitude 1600 meters, October 16, 1920 (V. Weiser), in the collection of the Museum of La Plata.

Orolimnophila argentinicola differs from the genotype, *O. lloydi* (Alexander) of Colombia, in the coloration of the wings, the venation and the structure of the male hypopygium.

Polymera unipunctata new species.

General coloration light brown, the scutellum and postnotum pruinose; thoracic pleura with a dark longitudinal stripe; femora with a subterminal brown ring; tarsi brownish yellow; wings with strong brownish tinge; a conspicuous brown seam along the cord.

♀. Length 6.5 mm.; wing 7.7 mm. Rostrum reddish brown; palpi light brown. Antennae of female uniformly brown, only the second scapal segment a little more testaceous. Head black with a yellowish gray bloom.

Pronotum pale. Mesonotum light brown without markings; scutellum and postnotum darker, gray pruinose. Pleura gray pruinose, with a comparatively narrow dark brown pleural stripe, extending from the cervical sclerites beneath the root of the halteres to the abdomen. Halteres yellow, the knobs light brown. Legs with the coxae testaceous, the fore coxae a little darkened basally; trochanters yellow; femora pale brown, the tips narrowly yellow; a narrow dark brown subterminal ring; tibiae light brown, the tips dark brown; tarsi pale brownish yellow, the metatarsi yellowish brown, the terminal segments darker brown. Wings with a strong brownish tinge; very faint brown clouds at the origin of *Rs* and the forks of *R*2+3 and *M*3 plus *Cu*1; a larger and more conspicuous brown cloud along the cord; veins dark brown. Venation: *r* on *R*1 comparatively near its tip, the ultimate section of *R*1 a little more than one and one-half the basal deflection of *Cu*1; cell *M*1 present; basal deflection of *Cu*1 more than one-half its length beyond the fork of *M*.

Abdomen brown, the lateral margins of the tergites darker brown; sternites pale brown.

Habitat: Argentina. *Holotype*, ♀, Ciudad, Jujuy, May 22, 1920 (V. Weiser), in the collection of the Museum of La Plata.

Polymera unipunctata is related to *P. obscura* but is a very different fly. The general effect of the wing-pattern is a conspicuous brown cloud near the center of the paler brown disk,

ENTOMOLOGICAL NEWS.

PHILADELPHIA, PA., JUNE, 1921.

Depositories of Type Material.

In the minutes of the last Annual Meeting of the Entomological Society of America, as published in a recent number of the *Annals* of that Society, we find an interesting report of the "Committee on U. S. National Museum." This report is divided into three sections; the first, detailing the activities of the Committee in its efforts to secure more adequate appropriations for the work of the Division of Insects of the United States National Museum; the second, asking for the support of members of the Society and of various related organizations to assist in every way possible toward securing such desired appropriations from Congress, and the third, an appeal for the deposit of types in the Museum.

With the first and second of these sections we find ourselves in hearty accord. The U. S. National Museum, in all its divisions, should be so adequately supported that no possible temporary or permanent curtailment of appropriations to the various departments of the federal government would, directly or indirectly, affect the invaluable reference collections there deposited. Such is always a possibility to-day, as a very large part of the supervisionary work on the collections of the Museum is performed and maintained by other government bureaus, which are vitally interested in the matter. The efforts of the Committee in endeavoring to secure adequate continuing financial support for the care and maintenance of the collections of the Division of Insects is most laudable, and the NEWS gives its hearty commendation and support.

Relative to the deposit and centralization of types in the Museum, differences of opinion may and do exist. Theoretically it would be best to have all types deposited in one great center, or several centers, as the case might be. The natural corollary of this would be that workers should similarly cen-

tralize to be near the types, to facilitate study and reduce travel. Practically such an arrangement cannot exist, as the world, or, for that matter, our country, has local or sectional influences, if this term be permitted, which cannot be ignored and which should not be disregarded, as these influences, or centers, largely have been the means of developing the present state of our knowledge of the sciences.

Reduced to practicalities the U. S. National Museum possesses no endowment and is supported by government appropriation. The size of this appropriation governs the amount of care and attention, as well as housing, the collections in the care of the Museum receive. It is virtually impossible to bind Congress to set aside or guarantee public funds in perpetuity for the care and preservation of these collections. We all agree the appropriations are at present grossly inadequate and should be greatly increased, and as individuals we should work toward that end. It should be realized, however, that other institutions, some of longer, equally productive activity, possess endowments not subject to legislative whims, and whose collections are of very great extent, extremely rich in types, in many groups of zoology as rich or richer, occasionally far richer, than the National Museum. These organizations have claims for consideration as type depositories which seem to be disregarded, or at least given little consideration, in the report as presented.

Collections of types, all will agree, should be housed in fireproof buildings, in modern cases, guarded as far as possible from damage of all sort, and open to examination under reasonable regulations to safeguard the material, yet not hamper the student who needs to consult it. Types should be preserved intact, and dismembering to place them in Riker mounts should not only be discouraged but prohibited. Yet, to a recent date, this destructive policy has been followed with certain insect type material at the National Museum. Here a matter of personal opinion as to what constitutes "preservation" is involved, and many students would say exactly the reverse is the result.

The National Museum can well be made a national repository of valuable and important collections, but it does not follow that the legitimate claims of other great institutions in the United States devoted to biological research, and which possess

in trust priceless collections of type material, should be ignored. It is, moreover, a piece of practical wisdom not to put all eggs (types) in any one basket, be it ever so "fireproof."

The point which we would emphasize is that scattered types, and the smaller collections of similar material, should be placed in fireproof buildings, under continuing care and guaranteed maintenance. The U. S. National Museum is one of these depositories, and most of the entomological workers in the East have made frequent use of the great type collections there located. However, other great repositories exist, their collections are maintained in excellent condition and preservation and are in constant use by entomological workers. Without reflection upon the U. S. National Museum, its administration, its staff or the maintenance of its entomological collections as a whole, the other institutions appeal as earnestly as the National Museum for the deposit of type material. Let the Entomological Society of America hold a brief for no one institution or collection, but urge the support and upbuilding of all those which have done and are doing their "bit" in the development of entomological science.

J. A. G. R.

Dr. H. H. Field and the Concilium Bibliographicum.

The recently announced sudden death on April 5, 1921, of Dr. Herbert Haviland Field, at Zürich, Switzerland, merits more than a passing notice by entomologists. Born in Brooklyn, New York, April 25, 1868, educated at the Brooklyn Polytechnic and at Harvard, he made researches on the anatomy and development of vertebrates until failing eyesight forced their abandonment. Impelled to further the progress of zoology in some line, he organized the *Concilium Bibliographicum* at Zürich. This institution undertook the compilation and publication of titles and references to place of publication of current zoological books and papers, in book form for the *Zoologischer Anzeiger*, of Leipsic, and as a card catalog for libraries and individuals. A classification of the subject matter of zoology was devised, each division and subdivision designated by index numbers, and usually several appropriate numbers accompanied the title of

each work catalogued. Anyone might subscribe to all of the catalog, or to any section of it, and the writer desires to express here his gratitude—as he did to Dr. Field in person—for the great saving of time and aid in research which his subscription to the card catalog afforded.

Unfortunately the financial difficulties of the undertaking, begun in 1895, were great. Dr. Field sacrificed all of his private means in its maintenance. The issuance of the cards ceased in 1918. About a year ago, Dr. Field was in the United States seeking support for the *Concilium* and various zoological societies warmly endorsed his attempt. The collection of funds was not easy, although money was secured to permit resuming work for the year, pending the development of plans for permanent support which appeared in sight. It is cheering to know that his death will not halt the development of the *Concilium*, but it is a source of regret that he could not have lived to see the re-establishment of his most helpful and worthy project.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE

The Entomological Society of London Appeals For Aid.

The fine old Entomological Society of London, founded in 1834, and which since 1875 has been meeting at 11 Chandos Street by the courtesy of the Medical Society of London, has, through the growth of its library, outgrown its quarters and is practically forced to move. It has bought a house at 41 Queen's Gate, South Kensington, near the Natural History Museum, and is leasing a portion of the building to the Imperial Bureau of Entomology. The cost price of the property was ten thousand pounds, and an additional sum is required for furnishing.

The cost price has been largely met by subscription from members, both as donations and as loans, the loans being secured by a debenture on the property and bearing five per cent. interest. After exhausting all the available resources of the resident members, there still remains a sum approximating fifteen hundred pounds, and the Society is making an appeal to foreign members, to entomologists in the dominions, and to interested entomologists in other parts of the world. Donations and loans are received by the Treasurer of the Society, Mr. W. G Sheldon, who may be addressed at 11 Chandos Street, Cavendish Square, London, W. I.

The London Society is the oldest of the great entomological societies, excepting the Entomological Society of France, which was founded a year earlier. Its *Transactions* and *Proceedings* have been largely used by American entomologists, and many of the latter, when traveling abroad, have been welcomed at the meetings of the Society and have cordially been given the use of the magnificent library.L. O. HOWARD.

J. H. Williamson Collecting in Florida—II.

Additional particulars of Mr. Jesse H. Williamson's collecting in Florida have come to hand since the note published in the NEWS for May, page 152. On April 15th he left Miami, where he collected but one day, and arrived at Enterprise. Here, the hotel having closed the preceding day, he obtained room and board with a private family and speaks very highly of his accommodations. Collecting began in the yard of this house and was extended to Lake Monroe, several creeks which were "followed back into a heavy humid forest," other lakes, ponds and swamps. "Am getting accustomed to the startled grunt and sudden stampede of razor-back hogs in the bush." By April 21st he had taken at least 12 additional species of Odonata not met with in the previous weeks, and on April 26th, still at Enterprise, he estimated his total collection of this order in Florida at 53 species and 4100 specimens.

The John Macoun Memorial Fund.

At the request of naturalists generally throughout Canada, the Ottawa Field Naturalists' Club has decided to receive subscriptions for a portrait of the late Professor John Macoun, naturalist of the Geological Survey of Canada, who died at Sidney, British Columbia, July 18, 1920. The portrait will be painted by Mr. Franklin Brownell, of Ottawa, and will be hung in the Victoria Memorial Museum, and the expenses in connection therewith are estimated at about $700. Should the amount be oversubscribed, arrangements may be made whereby those subscribing above a certain sum, which cannot now be defined, will receive a reproduction of the painting. Subscriptions should be sent to Mr. Arthur Gibson, Dominion Entomologist, Ottawa.

A New Entomological Journal—and in Austria!

Herr Fritz Wagner, of Haizingergasse 4, Vienna XVIII, has sent out a circular letter, dated March 24, 1921, stating that, considering the delays in publication of entomological papers, he is planning the publication of a new journal, the *Zeitschrift für Systematische Insektenkunde*, excluding Coleopterology and Lepidopterology. Dr. Reinhold Meyer, of Landsberg a. W., has agreed to act as editor. Provided 200 subscribers are obtained, the subscription price will be 40 Marks for a volume of six bimonthly numbers of 3-4 signatures (Bogen) each, with text figures and plates when practicable, — in Germany and German Austria. In countries like the United States, England, France, Italy, Holland, Switzerland, with higher rates of exchange, an addition of 150

per cent. is to be made to this price. Herr Wagner asks for subscription orders.

It is difficult to reconcile such a project with the appeals for assistance for existing journals such as that published in the May number of the NEWS.

PREVENT FOREST FIRES—IT PAYS!

EDITOR, ENTOMOLOGICAL NEWS—As a newspaper man you know without any telling what is the paper situation. Substantially every other industry using wood in any of its forms is in the same kind of trouble, or very soon will be.

In Pennsylvania the root of the whole trouble has been and still is the unmitigated curse of forest fire. Fire has destroyed more growing and prospective timber than all land clearing and cutting put together. Forest fires keep down production. Every acre of soil not needed for purposes more important should be growing trees. To do so they must be made secure against fire.

Because of the open winter and early spring the present fire season threatens to be one of the worst in years. I should appreciate it greatly if you would help by carrying, during May and June, the slogan of the Department of Forestry, which is, "Prevent Forest Fires—It Pays."

Your co-operation will be specially useful in making the idea of forest protection a part of the every day thought and consciousness of our people—GIFFORD PINCHOT, *Commissioner of Forestry, State of Pennsylvania.*

Entomological Literature

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded.

The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published.

All continued papers, with few exceptions, are recorded only at their first installments.

The records of papers containing new genera or species occurring north of Mexico are all grouped at the end of each Order of which they treat.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

The titles occurring in the Entomological News are not listed.

2—Transactions of the American Entomological Society, Philadelphia. **4**—Canadian Entomologist, London, Canada. **5**—Psyche, Cambridge, Mass. **6**—Journal of the New York Entomological Society. **7**—Annals of the Entomological Society of America, Columbus, Ohio. **10**—Proceedings of the Entomological Society of Washington, D. C. **12**—Journal of Economic Entomology, Concord, N. H. **13**—Journal of Entomology and Zoology, Claremont, Cal. **14**—Proceedings of the Zoological Society of London. **20**—Bulletin

de la Societe Entomologique de France, Paris. **24**—Annales de la Societe Entomologique de France, Paris. **33**—Annales de la Societe Entomologique de Belgique, Brussels. **39**—The Florida Entomologist, Gainesville. **45**—Zeitschrift fur wissenschaftliche Insektenbiologie, Berlin. **50**—Proceedings of the United States National Museum, Washington. **52**—Zoologischer Anzeiger, Leipsic. **54**—Proceedings of the Biological Society of Washington, D. C. **61**—Proceedings of the California Academy of Sciences, San Francisco. **67**—Le Naturaliste Canadien, Quebec. **68**—Science, Lancaster, Pa. **69**—Comptes Rendus des Seances de l'Academie des Sciences, Paris. **77**—Comptes Rendus des Seances de la Societe de Biologie, Paris. **80**—Revue Suisse de Zoologie, Geneve. **81**—The Journal of Parasitology, Urbana, Illinois. **82**—The Ohio Journal of Science, Columbus. **99**—Bulletin du Museum National d'Histoire Naturelle, Paris. **100**—Biological Bulletin of the Marine Biological Laboratory, Woods Hole, Mass. **116**—Entomologische Zeitschrift, Frankfurt a. M. **121**—Boletin del Museo Nacional de Chile.

GENERAL. Aldrich, J. M.—Coloradia pandora, a moth of which the caterpillar is used as food by Mono Lake Indians. **7,** xiv, 36-8. **Bertin, L. L.**—L'etude experimentale de la variation chez les insectes. (La Nature, 1921, 184-9; 196-200.) **Dozier, H. L.**—An ecological study of hammock and piney woods insects in Florida. **7,** xii, 325-80. **Fernald, C. H.**—Obituary by A. F. Burgess. **12,** xiv, 242-3. **Kraatz, W. C.**—A preliminary general survey of the macrofauna of Mirrow Lake on the Ohio State University campus. **82,** xxi, 137-82. **Meissner, O.**—Varia entomologica. **116,** xxxiv, 105-6. **Merrill, G. B.**—Entomological training at the University of Florida. **39,** iv, 54-5; 58-60. **Needham, J. G.**—A biological examination of Lake George, N. Y. (Scientific Monthly, xxii, 434-8.) **Paillot, A.**—Role des humeurs dans la destruction extracellulaire des microbes chez les insectes. **69,** clxxii, 876-8. **Schroder, C.**—Handbuch der Entomologie. Lief. 5-6. Gustav Fischer, Jena. **Walton, W. R.**—Entomological drawings and draughtsmen: their relation to the development of economic entomology in the U. S. **10,** xxiii, 69-99. **Wheeler, W. M.**—A new case of parabiosis and the "ant gardens" of British Guiana. (Ecology, ii, 89-103.)

ANATOMY, PHYSIOLOGY, ETC. Bridges, C .B.—Proof of non-disjunction for the fourth chromosome of Drosophila melanogaster. **68,** liii, 308. **Crampton, G. C.**—Corrections of a statement concerning the terminal abdominal structures of male insects. **4,** liii, 72. **Herrmann, E.**—Ueber besondere zellelemente im fettkorper der fliege. **52,** lii, 193-200. **Little, C. C.**—Non-disjunction of the fourth chromosome of Drosophila. **68,** liii, 167. **Showalter, A. M.**—The chromosomes of Conocephalum conicum. **68,** liii, 333. **Wilke, E.**—Fettkorper, speicheldruse und vasa Malpighi der blattwespenlarven. **52,** lii, 249-54.

ARACHNIDA, ETC. **Brolemann, H. W.**—Mesure d'un arc meridien en Amerique du Sud. Myriapods. (Tome x, 235-75.) **Moles & Moore**—A list of California Arachnida. I. Pseudoscorpionida. **13,** xiii, 6-9. **Ochoterena, I.**—El alacran de durango (Centrurus exilicauda). (Mem. Rev. Soc. Cien. "Antonio Alzate," Mexico, xxxvii, 215-26.) **Roewer, C. F.**—Mesure d'un arc de meridien en Amerique du Sud. Arachnida. (Tome x, 121-42.)

Chamberlin, R. V.—A new genus and a new species of spiders in the group Phrurolitheae. **4,** liii, 69-70. Linyphiidae of St. Paul Island, Alaska. **6,** xxix, 35-43. **Ewing, H. E.**—The genus Trombicula, in America and the Orient. **7,** xiii, 381-90.

NEUROPTERA. **Enderlein, G.**—Psyllidologia, VI. **52,** lii, 115-22. **Morse, A. P.**—Sympetrum corruptum in Massachusetts. **5,** xxviii, 7. **Samal J.**—Plecopteres Sud-Americains nouveaux. **33,** lxi, 109-12. **Smith, R. C.**—A study of the biology of the Chysopidae. **7,** xiv, 27-35.

ORTHOPTERA. **Chopard, L.**—Diagnoses d'especes nouvelles de Gryllidae. Diagnoses de Gryllides nouveaux, de la Guyane francaise. **99,** 1920, 208-15; 310-15. **Hebard, M.**—Dermaptera and Orthoptera of the Galapagos expedition. **61,** ii, 311-46. **Regen, J.**—Eine nymphe von Gryllus campestris (female), mit drei cerci. **52,** lii, 189-90.

Hebard, M.—A new genus and species of grasshopper from California. **61,** x, 71-5.

HEMIPTERA. **Chapais, J. C.**—L'aphis du meleze. **67,** xlvii, 194-5. **Ferris, G. F.**—Notes on Coccidae. A review of MacGillivray's "The Coccidae." **4,** liii, 57-60 (cont.). **Johnson, C. W.**—Okanagana rimosa in Nova Scotia. **5,** xxviii, 15. **Morse, A. P.**—Monecphora bicincta in New England. **5,** xxviii, 27-8. **Peterson, A.**—Some studies on the influence of environmental factors on the hatching of the eggs of Aphis avenae, and A. pomi. **7,** xiii, 391-401.

Ball, E. D.—The smallest known leaf hopper. **54,** xxxiv, 23-4. **Davis, W. T.**—Records of cicadas from North America, with descriptions of n. sps. An annotated list of the cicadas of Colorado with description of a n. sp. **6,** xxix, 1-16; 43-57. **Drake, C. J.**—Notes on some American Tingidae, with descriptions of n. sps. **39,** iv, 49-54. **Hussey, R. F.**—Distributional notes on Hemiptera, with the description of a n. sp. **5,** xxviii, 8-15. **Parshley, H. M.**—Essay on the American species of Aradus. **2,** xlvii, 1-106.

LEPIDOPTERA. **Figueroa, C. S.**—Un nuevo Lasiocampido chileno. Revision de los lepidopteros rhopaloceros de Chile. **121,** xi, 1-8; 198-214. **Fletcher, T. B.**—Life histories of Indian insects.

Microlepidoptera. (Mom. Dept. Agric. in India, Ent. Ser., vi, 217 pp.).

Braun, A. F.—Notes on Elachista, II. **82,** xxi, 207-10. **McDunnough, J.**—New British Columbia tussock moth, Hemerocampa pseudotsugata. **4,** liii, 53-6.

DIPTERA. Bezzi, M.—The correct name for the dipterous genus Dicrania. **7,** xiii, 408. **Cotterell, G. S.**—The life-history and habits of the yellow dung-fly (Scatophaga stercoraria); a possible blow-fly check. **14,** 1920, 629-47. **Edwards, Becker & Surcouf**—Mesure d'un arc de meridien en Amerique du Sud. Dipteres. (Tome x, 143-233.) **Enderlein, G.**—Zur kenntnis der Pterocallinen. Dipterologische studien, XVII. **52,** lii, 211-19; 219-32. **Gemmell, E.**—A note on a local member of the family Psychodidae. **13,** xiii, 1. **Johannsen, O. A.**—The first instar of Wohlfahrtia vigil. **81,** vii, 154-5. **Juday, C.**—Observations on the larvae of Corethra punctipennis. **100,** xl, 271-86. **Legendre & Oliveau**—Role du lapin domestique dans l'attraction et la nutrition d'Anopheles maculipennis. **77,** clxxii, 833-3. **Malloch, J. R.**—A synopsis of the North American species of the genera Melanochelia and Limnophora. **4,** liii, 61-4. **Surcouf, J. M. R.**—Note sur un accouplement aberrant chez les dipteres. **20,** 1921, 46-7.

Alexander, C. P.—A new subfamily of Tanyderid flies. **7,** xiii, 402-5. **Dietz, W. G.**—The impudica group of the dipterous genus Tipula. **7,** xiv, 1-15. **Johnson, C. W.**—A review of the American species of the genus Palloptera. **5,** xxviii, 20-3.

COLEOPTERA. Denier, P.—Description d'especes nouvelles du genre Pseudomeloe. **24,** lxxxix, 204-8. **Drake, C. J.**—A new ambrosia beetle from the Adirondacks; notes on the work of Xyloterinus politus. **82,** xxi, 201-5. **Fleutiaux, E.**—Collections recueilles par la mission geodesique de l'Equateur. Elaterides. **99,** 1920, 300-5. **Frost & Weiss**—Additions to Agrilus bibliography. **4,** liii, 72. **Gage, J. H.**—The larvae of the Coccinellidae. (Illinois Biol. Monogr., vi, No. 4. 62 pp.) **Hawkes, O. A. M.**—Observations on the life-history, biology and genetics of the lady-bird, Adalia bipunctata. **14,** 1920, 475-90. **Heymons, R.**—Die frassfiguren der Hypoborinen. **45,** xvi, 81-90. **Howard, L. O.**—Catalogue of the coleoptera of America, north of Mexico. (Review.) **68,** liii, 441-2. **Hyslop, J. A.**—Genotypes of the elaterid beetles of the world. **50,** lviii, 621-80. **Johnson, C. W.**—A new Ptinid for New England. **5,** xxviii, 7. **Kleine, R.**—Haben die Hylobius-arten einen stridulationsapparat? **45,** xvi, 109-14. **Schenkling, S.**—Coleopterorum catalogus. Pars 72: Scarabaeidae, Cetoninae. 431 pp. **Spence & Prater**—"Hopping" pupa of a curculionid beetle. (Jour. Bombay Nat. Hist. Soc., xxvii, 407-8.) **Strand, E.**—Neue namen dreier insektengat-

tungen. **116,** xxxiv, 106. **Weiss & West**—Additional fungous insects and their hosts. **54,** xxxiv, 59-62.

Blatchley, W. S.—Notes on Indiana Halticini with characterization of a new genus and descriptions of new species. **6,** xxix, 16-27. **Portevin, G.**—Silphides nouveaux de la collection du museum. **99,** 1920, 505-8

HYMENOPTERA. Emery, C.—Specific names repeated in the Linnean genus Formica. **5,** xxviii, 24-6. **Herbst, P.**—Un nuevo jenero de avispas cavadoras (Sphegidae). **121,** xi, 217-20. **Montet, G.**—Hymenopteres nouveaux du genre Pepsis de la collection du museum d'histoire naturelle de Geneve. **80,** xxviii, 205-19. **Porter, C. E.**—Un nuevo braconido del sur de Chile. **121,** xi, 215-6. **Stevens, O. A.**—Further notes on evening flowers, Panurgine and Halictine bees. **4,** liii, 65-9. **Wheeler, W. M.**—Professor Emery's subgenera of the genus Camponotus. **5,** xxviii, 16-19.

Banks, N.—New Nearctic fossorial H. **7,** xiv, 16-26. **Fenton, F. A.**—New parasitic H. of the subfamily Anteoninae. **4,** liii, 70-1. **MacGillivray, A. D.**—New species of Nematinae. **6,** xxix, 27-35.

SOME SOIL FUMIGATION EXPERIMENTS WITH PARADICHLOROBENZINE FOR THE CONTROL OF THE PEACH-TREE BORER, SANNINOIDEA EXITIOSA SAY, by ALVAH PETERSON (Soil Science, vol. xi, No. 4, pp. 305-318, pl. 1, April, 1921).—This paper deals with paradichlorobenzine as a soil fumigant, taking into consideration such factors as soil texture, acidity, alkalinity, moisture and temperature, methods and time of application, effects on trees and borers, and costs and represents the results of numerous and varied experiments conducted by Dr. Peterson since 1917. Topics receiving consideration are: strength of application, injury to trees, short exposures, time of application, method of application, soil conditions, especially temperature and moisture, costs and rate of evaporation of material. Tables are presented showing the results of short exposures and early and late summer treatments in various types of soil and also the influence of soil moisture and temperature. The author concludes that paradichlorobenzine gives considerable promise as a valuable insecticide for the control of the peach-tree borer; that the use of this material is still in the experimental stage and recommends that peach growers be encouraged to try out this substance for a year or so on a small block of trees 6 years of age or older before treating large plantings. From three-fourths to one ounce of paradichlorobenzine will kill 90 to 100 per cent of the borers if the soil temperature is 55 to 60 degrees F., or higher, and if the soil is not too wet. The margin of safety is considerable if the trees treated are 6 years old or over.

The finely divided crystals should be evenly distributed in a narrow,

continuous, circular band approximately 2 inches from the tree (never closer than 1 inch) on smooth ground about the base of the tree. If indications point to the presence of borers from 1 to 6 inches above the ground, the soil should be mounded about the tree so that the upper level is even with the highest point where the gum is exuding. The application then should be made on the new soil level. After the crystals are distributed, several shovels of earth should be placed over them and packed down with the back of the shovel. This earth should be free of weeds, grass, large stones, etc. In New Jersey, the best time of application is from August 25th to September 10th.

Paradichlorobenzine is a white, crystalline substance occurring as a by-product in the manufacture of monochlorobenzine. It is insoluble in water and evaporates slowly at ordinary temperatures (70 degrees F.). The gas is heavier than air, non-poisonous to man under ordinary conditions, but toxic to insects during long exposures.

The paper is accompanied by a series of photographs, showing the correct and incorrect ways of applying the insecticide. It is to be regretted that Dr. Peterson's interesting and valuable paper could not have appeared in a journal devoted entirely to entomology, although a wide distribution of separates will overcome this drawback in part. While the paper in question deals in part with such factors as soil texture, moisture, temperature, etc., in so far as they have a bearing on the effectiveness of the fumigant, the paper is really a contribution to our knowledge on the control of the peach-tree borer and as such, is of importance mainly to entomologists. One of the results of the "shortage of entomological space" is a tendency on the part of authors to publish their material wherever facilities are afforded, and this means a greater scattering of the literature and, to a certain extent, inaccessibility for many workers.—HARRY B. WEISS, New Brunswick, New Jersey.

THE COCCIDAE. Tables for the Identification of the Sub-families and some of the more Important Genera and Species, together with Discussions of their Anatomy and Life History. By Prof. ALEX D. MACGILLIVRAY. Pages I-VIII, 1-502, Scarab Co., Urbana, Ill. 1921. $6.00—Those of Prof. MacGillivray's associates, students and friends who have long known of his plan to prepare a volume on the Coccids will welcome the appearance of the finished work. The complete title of the book really leaves little to be said concerning its scope, for it is at once a thorough morphological and taxonomic treatise of the family, the keys extending in many instances as far down as the species. In some sections considerable is given concerning the life history and economic status of the groups and species under discussion. Since most of the keys have been used extensively by advanced students taking work under Prof. MacGillivray, it has thus been possible to revise them from time

to time so that the majority of their weaknesses should have been eliminated.

The work is comprehensive, yet detailed where detail is most needed, and will at once meet a long felt want among students, teachers and official entomologists. One cannot help but admire the boldness of the author in his attempt to bring about order in a family where chaos has so long reigned and particularly in his endeavor to develop a satisfactory nomenclature.—J. S. HOUSER.

OBITUARY.

Prof. LOUIS COMPTON MIALL, Emeritus Professor of Biology in the University of Leeds, England, died on February 21, 1921. From an obituary notice in the *Entomologist's Monthly Magazine* for April, 1921, we learn that he was born seventy-eight years ago, son of a Congregational minister at Bradford, attended Silcoates School, began teaching in a private school in Bradford when fifteen, and became interested in natural history through his brother, a medical student. He had no systematic training in biology, but subsequently learned something of its technique at the Leeds School of Medicine. He became Secretary of the Bradford Philosophical Society at the age of about 20, Curator of the Museum of the Leeds Philosophical Society in 1871, first professor of biology in the Yorkshire College of Science in 1876, and later in the University of Leeds until he retired in 1907. He was elected a fellow of the Royal Society in 1892, of the Entomological Society of London in 1894 and a Special Life Fellow of the latter in 1916.

While his earlier researches were in vertebrate paleontology and morphology, he soon became interested in the anatomy, physiology and development of insects, publishing:

The Structure and Life History of the Cockroach, An Introduction to the Study of Insects (With Alfred Denny, 1886); *Some Difficulties in the Life of Aquatic Insects* (in Nature, 1891); *Dicranota, a Carnivorous Tipulid larva* (Trans. Ent. Soc., Lond., 1893); *The Development of the Head of the Imago of Chironomus* (with A. R. Hammond, in Trans. Linn. Soc. Lond. 1893); *The Natural History of Aquatic Insects* (London and New York, Macmillan, 1895, with new editions in 1903 and 1912); *The Transformations of Insects* (in Nature, 1895); *The Life History of Pericoma canescens (Psychodidae), with a bibliographical and critical appendix* by Baron Osten Sacken (Trans. Ent. Soc. Lond. 1895); *The Structure and Life History of Phalacrocera replicata* [Tipulidae], *With an appendix on the literature of the earlier stages of the Cylindro-*

tomina (with R. Shelford, in same Trans. 1897); *The Structure and Life History of the Harlequin Fly* (*Chironomus*) (with A. R. Hammond, Oxford, 1900); *Injurious and Useful Insects, an Introduction to the Study of Economic Entomology* (London, 1902); *On a new cricket of aquatic habits found in Fiji* (with Prof. G. Gilson, in Trans. Ent. Soc. Lond. 1902); *The Structure and Life History of the Holly-Fly* (with T. H. Taylor in same Trans. 1907).

Among his more general writings were his Vice-Presidential address to the British Association for the Advancement of Science, Zoology, at Toronto in 1897, on *Life-history Studies of Animals* (reprinted in Ann. Rept. Smithson. Inst. for 1897), and his books *Round the Year, Short Nature Studies* (1896); *House, Garden and Field* (1904); *Object Lessons from Nature;* and *Thirty Years of Teaching;* while with W. W. Fowler he furnished an introduction and notes to an edition of Gilbert White's *Natural History and Antiquities of Selborne* (1901).

Of all of these his *Natural History of Aquatic Insects* is the best known; in it and in *The Cockroach* he displays that admiration for the work of Réaumur and others which perhaps led him to those studies resulting in his brief *History of Biology* (1911), one of the History of the Sciences series published by the Putnams of New York, and *The Early Naturalists, their Lives and Work,* 1530-1789 (London, Macmillan, 1912). In the preface to this last he wrote:

> The early naturalists have occupied so much of my leisure of late years that it becomes a pleasant task to write about them. My chief aim is to induce such readers as I may find to make themselves better acquainted with the founders of modern natural history. . . . Insects take up more than their due share of space, partly because they are really prominent in the works of early naturalists, partly because old books about insects give me more than common pleasure.

To those unacquainted with this volume it may well be commended.—P. P. C.

Other English entomologists whose recent deaths are recorded in the March and April numbers of the same *Magazine* are Dr. Herbert Henry Corbett, of Doncaster, died January 5, 1921, in his 65th year; John William Carter, of Bradford, died December 15, 1920, aged 67, and John Clarke Hawkshaw, of Hollycombe, near Liphook, Sussex, died February 12, 1921, in his 80th year; he was the eldest son of Sir John Hawkshaw, F.R.S., eminent engineer. All three were largely interested in Microlepidoptera as well as in other orders.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

For Exchange—Iowa Catocalae in A-1 condition. Wanted, Cocoons of Actias luna also other lepidoptera. Mrs. O. F. Hiser. Arnolds Park, Iowa.

Books Wanted—Entomological News, Vol. 11, Nos. 1, 3, 5; Vol. 14, Nos. 1, 7. Brooklyn Museum Library, Eastern Parkway and Washington Ave., Brooklyn, N. Y.

Wanted—N. A. Coleopterists interested in European Coleoptera. Liberal exchanges and friendly correspondence. Mr. C. Crozet, 155, Via Cavour, Rome, 23, Italy.

Wanted—To examine, determine and exchange Cicadellidae or "Jassidae" from all parts of North America. J. G. Sanders and D. M. DeLong, State Capitol, Harrisburg, Pa.

Lepidoptera.—Offer in exchange for rare S. American Lepid., about 400 Rhopalocera in papers from S. Cameroun (Africa), mostly Papil. Pierid, Danaid, Satyrid and Nymphal.—J. H. Jurriaanse, Shiekade 75, Rotterdam, Holland.

Twenty-nine 12 x 15 insect boxes for exchange for Elateridae not in my collection. Address H. B. Kirk, 1902 North St., Harrisburg, Pa.

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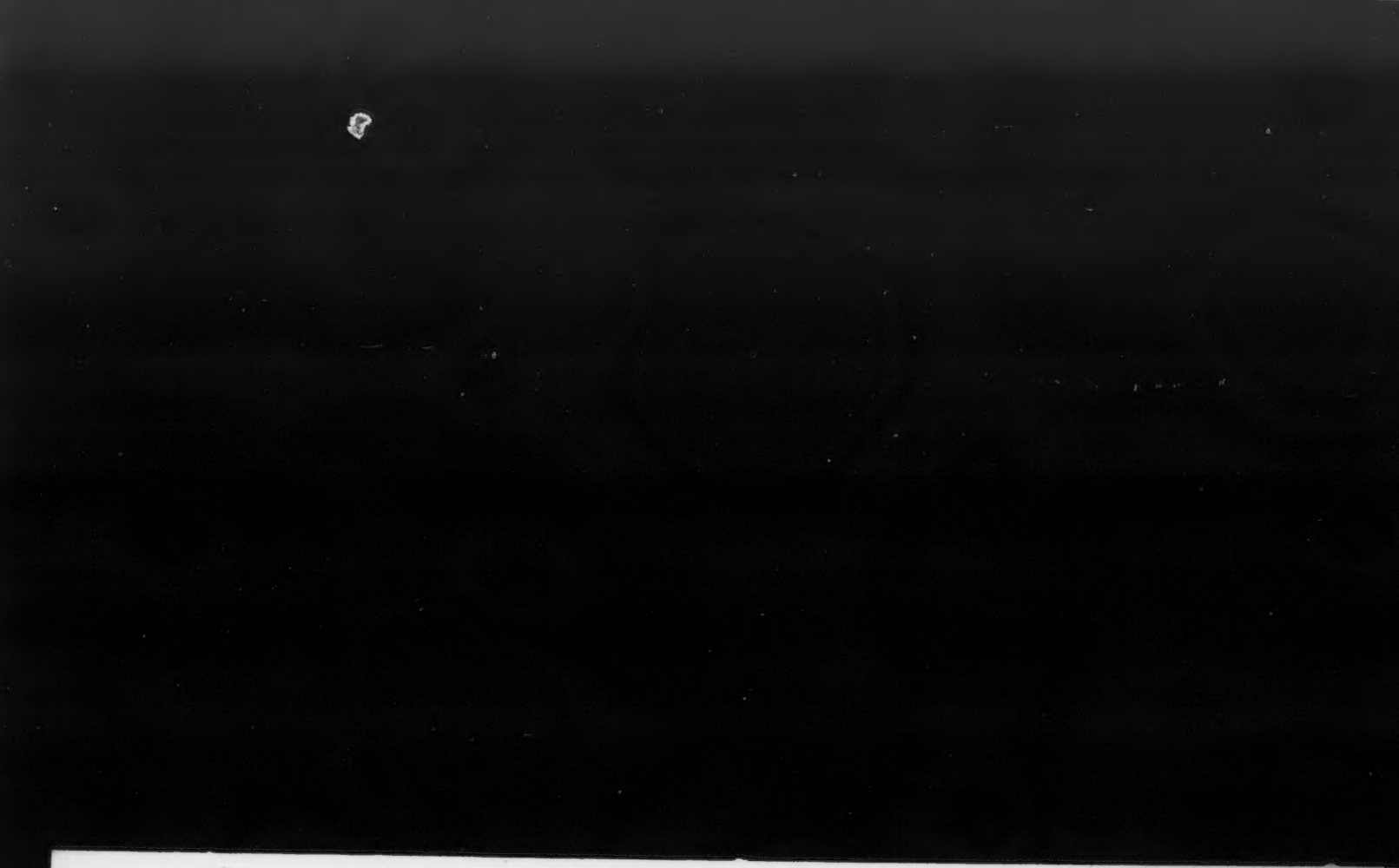

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